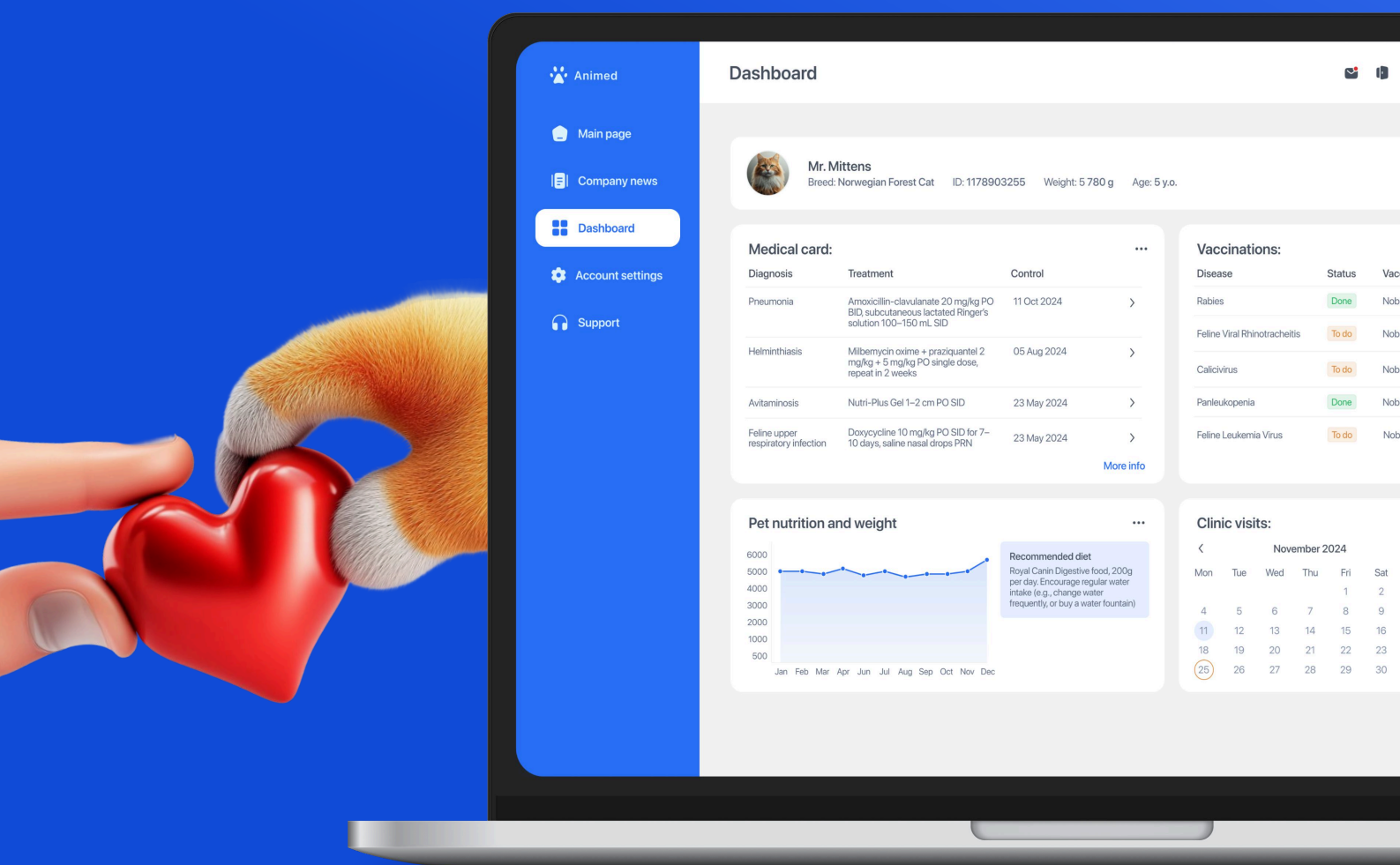


# SMART AI CO-PILOT

for

the veterinary  
medical records



The Aristek team developed an AI-powered solution to streamline veterinary medical record processing, enhancing efficiency and decision-making for veterinarians. The smart AI co-pilot functions as an add-on and can be easily integrated into various platforms.

## CLIENT

A US-based veterinary telemedicine platform owner.

LOCATION: USA

INDUSTRY: VETERINARY

CLIENT SINCE: 2024

## KEY ACHIEVEMENTS

40%

less time spent on  
medical records review

25%

increase in early detection  
of health issues

30%

reduction in diagnostic  
errors

## CHALLENGE

The client, the owner of a telemedicine platform, highlighted the growing challenge of managing the increasing vet staff workload. Many specialists were conducting virtual consultations after hours, evenings, or weekends, while others were squeezing them between in-person clinic appointments.

The platform allowed veterinarians to conduct follow-up, post-operative exams, and minor medical consultations remotely, reducing unnecessary clinic visits.

However, each telemedicine consultation required a thorough review of the pet's medical history, which slowed down the process considerably.

As demand grew, this manual approach limited the platform's ability to scale effectively, making it difficult to accommodate more pet owners and maximize potential revenue.

There were also challenges in processing veterinary medical records because of:



Large volumes of historical medical records in a variety of formats, including handwritten notes from different clinic departments.



Unstructured and inconsistent data, making it difficult to extract meaningful information.



The need to provide relevant information to animal owners without causing undue anxiety.



The need to accurately analyze health indicators and benchmarks that vary with conditions such as age and pre-existing diseases.

The client was looking for a service provider with expertise in implementing AI into existing software, ensuring seamless integration while enhancing the platform's functionality and scalability.

## SOLUTION

Veterinarians use advanced diagnostic tools like digital radiology, CT, MRI, and ultrasound to diagnose and treat conditions.

However, their true value lies in interpreting this data, which depends on their expertise, shared knowledge, research, and the pet's medical history.

To support this process, the Aristek team proposed enhancing the telemedicine platform with an AI-based solution that enables veterinarians to make faster, more informed decisions by combining their experience with AI insights.



### Accurate diagnostic support

AI provides deeper data-driven interpretations of diagnostic images, medical history, and test results, speeding up decision-making and improving accuracy.



### Dynamic medical analysis

The solution analyzes medical records in real time, adjusting for factors like age, pre-existing conditions, and current health status.



### Identification of rare conditions

AI helps spot rare conditions or correlations that may be challenging for even experienced specialists to detect immediately.



### Fast case retrieval

Veterinarians can quickly access relevant past cases and treatment plans, enabling them to identify similar symptoms and make faster, more accurate decisions.



### Dynamic health monitoring

AI helps to analyze patient trends continuously, flagging potential health risks based on historical data for proactive care.

# PROJECT SCOPE

The goal was to analyze medical data to detect health issues early and recommend proactive treatment. Here's how the team developed and integrated the solution step by step.

## 01

### Comprehensive data collection

Collected diverse veterinary records, including handwritten notes, ensuring privacy compliance. Data was securely stored in AWS S3 for easy access during processing and training.

## 02

### Data cleaning & preprocessing

Used AWS Textract for OCR to digitize handwritten notes. Data was cleaned and standardized through custom pipelines for AI training readiness.

## 03

### Custom AI model development

Built a hybrid AI model using NLP and Hugging Face Transformers. A GPT-4o-powered multi-agent system handled complex analysis and communication.

## 04

### Seamless platform integration

Integrated the AI tool via AWS Lambda and API Gateway, enabling secure, real-time data processing and on-demand medical summaries.

To ensure smooth integration with the existing telemedicine platform, Aristek's development team handled both frontend and backend enhancements:



### Backend

The backend used Python-based microservices deployed via AWS Lambda. AWS Glue handled ETL tasks, while OpenSearch enabled fast retrieval of relevant cases. Secure, scalable communication was ensured through AWS API Gateway and IAM for real-time processing.



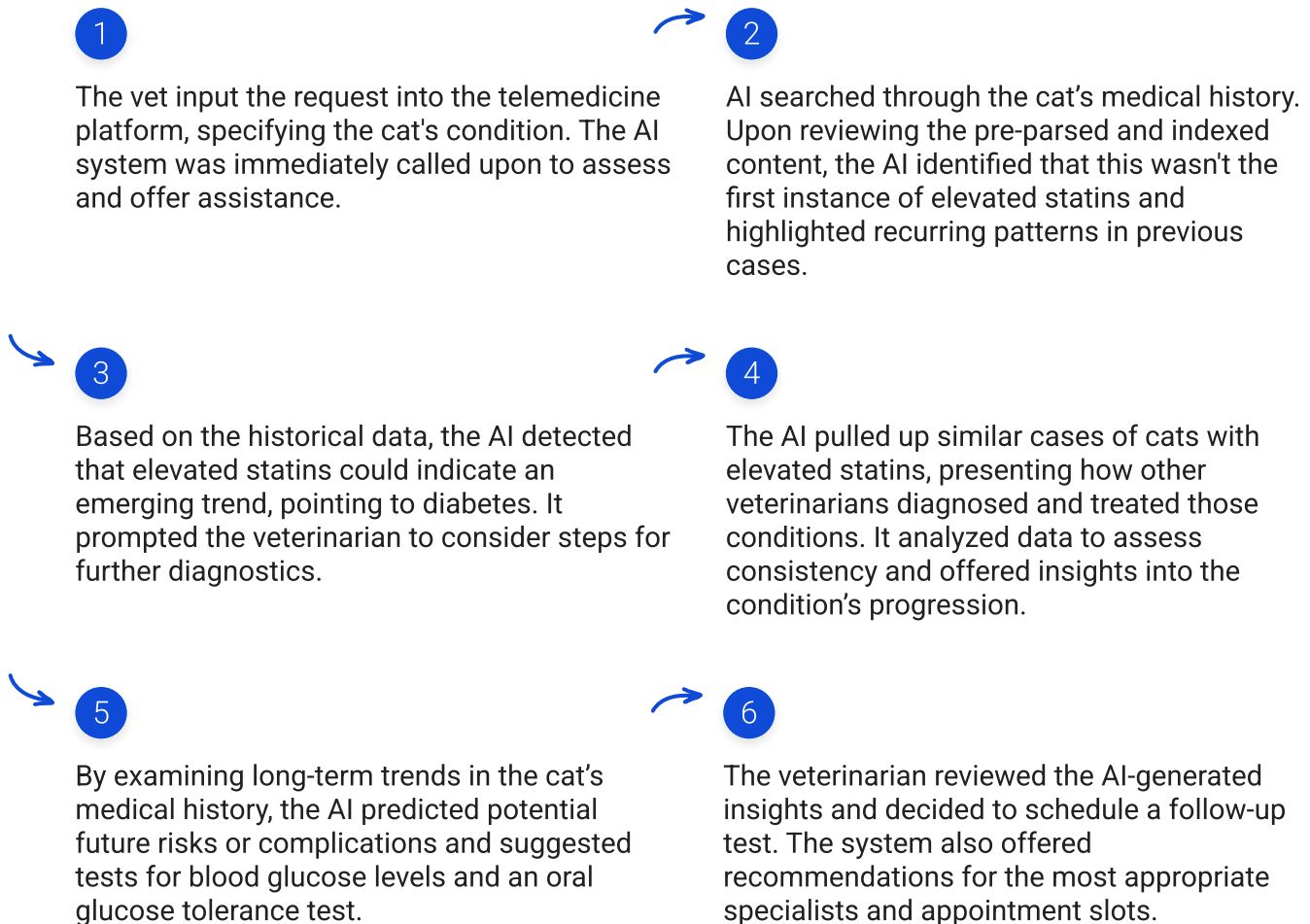
### Frontend

The AI assistant and dynamic summaries were embedded into the existing React interface. Veterinarians could access insights, flagged risks, and similar cases within the consultation screen. The design emphasized intuitive UX with a minimal learning curve.



# HOW IT WORKS

Let's say a registered physician on the telemedicine platform received a request from a pet owner about their cat, which had elevated statins in its urine. The veterinarian decided to consult the AI co-pilot for insights into the medical history of the pet.



The AI summarizer **does not replace the veterinarian** but is designed to assist by:

Aggregating similar cases and identifying patterns.

Analyzing previous diagnoses and treatments by other doctors.

Analyzing long-term health trends in the pet's medical records.

Offering contextual recommendations based on data, not subjective judgment.

The final decision regarding the pet's diagnosis and treatment remains in the hands of the veterinarian, with the AI acting as an additional tool to enhance accuracy and decision-making efficiency.

# HOW IT LOOKS

**Dashboard**

Mr. Mittens  
Breed: Norwegian Forest Cat ID: 1178903255 Weight: 5.780 g Age: 5 y.o.

[Schedule an appointment](#)

**Medical card:**

Diagnosis	Treatment	Control
Pneumonia	Amoxicillin-clavulanate 20 mg/kg PO BID, subcutaneous lactated Ringer's solution 100-150 mL SID	11 Oct 2024
Helminthiasis	Milbemycin oxime + praziquantel 2 mg/kg + 5 mg/kg PO single dose, repeat in 2 weeks	05 Aug 2024
Avitaminosis	Nutri-Plus Gel 1-2 cm PO SID	11 Nov 2024

[More info](#)

**Vaccinations:**

Disease	Status	Vaccine	Primary	Repeated
Rabies	Done	Nobivac DHP	21 Mar 2024	07 Jul 2024
Feline Viral Rhinotracheitis	To do	Nobivac KC	07 Jul 2024	repeat until 25 Nov 2024
Calicivirus	To do	Nobivac DHP	07 Jul 2024	repeat until 25 Nov 2024
Parvulokopenia	Done	Nobivac KC	21 Mar 2024	07 Jul 2024
Feline Leukemia Virus	To do	Nobivac DHP	to do until 13 Dec 2024	once

[More info](#)

**Clinic visits:**

November 2024

Mon	Tue	Wed	Thu	Fri	Sat	Sun
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

11 November 2024, 15:30  
Scheduled examination, vaccination, doctor Novikov J., room 278

11 November 2024, 17:00  
Scheduled examination, vaccination, doctor Novikov J., room 278

On the platform, the veterinarian can access the pet's full medical record, including **DIGITIZED HANDWRITTEN PRESCRIPTIONS**, previous diagnoses, and treatment plans. They can also consult the AI copilot to help interpret clinical data.

**Vet AI Copilot**

**Patient ID: 1178903255**

A 5-year-old cat is presenting with elevated ALT and AST levels, mild jaundice, and reduced appetite. Bilirubin is elevated; ALP remains normal. The cat was treated with doxycycline a week ago. Please analyze the current condition and suggest possible causes based on the medical history.

Type... [Submit](#) [X](#)

The veterinarian inputs the patient ID and current symptoms. The AI copilot **AUTOMATICALLY RETRIEVES** the animal's medical history, clinical findings, lab results, and trusted veterinary guidelines to analyze the case and suggest a relevant treatment plan.

**Vet AI Copilot**

Elevated ALT, AST, and bilirubin indicate hepatic involvement, especially given the cat's history of pneumonia. Jaundice with normal ALP suggests possible hepatic lipidosis, cholangitis, or drug-induced liver injury (e.g., doxycycline toxicity). Cholestasis is less likely.

**Next steps to refine diagnosis:**

- Bile acids test to assess liver function.
- Abdominal ultrasound.

[Schedule ultrasound](#)

[Order bile acids test](#)

[Review medications](#)

[Suggest a nutritional support plan](#)

Type... [Submit](#) [X](#)

AI analyzes the veterinarian's input and leverages **ALL AVAILABLE PET-SPECIFIC DATA** while considering risk factors like drug interactions and pre-existing conditions to support clinical decision-making.

# TEAM

1

AI/ML engineer

1

Front-end developer

1

Back-end developer

1

Subject matter expert

# TOOLS & TECHNOLOGIES

OpenCV

TensorFlow

OpenAI GPT-4o

spaCy

AWS Lambda

FastAPI

PostgreSQL

# PROJECT RESULTS

The Aristek team leveraged AI to enhance veterinary telemedicine by developing a smart AI assistant that processes pet medical histories, diagnostic images, and treatment plans.

The solution analyzes vast datasets to provide veterinarians with quick, accurate insights, enabling faster and more precise decision-making.

## Time savings for staff

Saved up to 40% of vets' time by extracting key data and summarizing cases instantly.

## Early diagnosis improvement

Enabled a 25% boost in early issue detection by spotting trends in medical history.

## 30% fewer diagnostic errors

Reduced errors by 30% through case comparison and expert insight matching.

## 95% accuracy in record parsing

Achieved 95%+ accuracy in digitizing handwritten notes for better data access.

## Flexible integration across industries

Easily integrates into existing systems across healthcare, finance, and more.